OC-00146-03.05-01/01/94

# Site Management Plan
# NAS Oceana

Prepared for:
Atlantic Division Naval
Facilities Engineering Command
Norfolk, Virginia

Contract N62470-93-D-4072

**Prepared by**

CH2M HILL

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# Chapter 1
# Introduction

This report presents the initial Site Management Plan (SMP) for the Naval Air Station (NAS) Oceana. The purposes of the SMP are to present the projected activities to be conducted at NAS Oceana during fiscal year (FY) 1994 and their estimated completion dates, and to provide long-term projections for the cleanup process in accordance with the Navy's Installation Restoration Program (IRP). The SMP will be updated quarterly the first year to revise priorities of activities as additional information becomes available.

## NAS Oceana Operations

NAS Oceana has been in existence since 1940 when it was established as a small auxiliary airfield. Since 1940, NAS Oceana has grown to more than 16 times it original size and is now a 6,000-acre master jet base supporting a community of more than 9,100 Navy personnel and 11,000 dependents. The primary mission of NAS Oceana is to provide the personnel, operations, maintenance, and training facilities to ensure that fighter and attack squadrons on aircraft carriers of the U.S. Atlantic Fleet are ready for deployment. A total of 62 squadrons, tenants, and nonnaval units are assigned to Oceana, including 12 F-14 Tomcat fighter squadrons and 7 A-6 Intruder medium attack squadrons.

As part of the national consolidation of military activities and bases under BRAC, operations of a S-3 antisubmarine warfare unit are being moved to NAS Oceana from Cecil Field in Jacksonville, Florida. In order to accommodate this unit, additions to Buildings 301, 306, and 513 near the current FITWING area have been proposed. The Building 301 investigation is in response to the anticipated expansion.

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In 1981, NAS Oceana initiated a comprehensive hazardous waste collection and recycling program to prevent releases of hazardous wastes to the environment. The program involved constructing waste controls such as oil and water separators near aircraft cleaning and maintenance areas, and working closely with various shops to ensure that wastes were properly contained, segregated, labeled, and collected. NAS Oceana also monitors discharges within drainages on and off the station as part of its National Pollution Discharge Elimination System (NPDES) monitoring to prevent the discharge of contamination beyond the limits of the station.

## Previous Studies

Three studies within the RCRA corrective action process and three studies under the IR program prior to RCRA corrective action have been conducted at Oceana. The IRP was designed to identify and correct problems of environmental contamination caused by past operations at naval facilities. The first stage of the Installation Restoration program at NAS Oceana was the completion of an Initial Assessment Study (IAS) in 1984 (RGH, 1984). The IAS recommended field investigations for six sites at NAS Oceana to confirm whether hazardous constituents had been released to the environment. In response to the IAS, the Round I Verification Study was performed in 1986 (CH2M HILL, 1986), and the Line Shack Site Inspection followed in 1988 (CH2M HILL, 1989). The Line Shack inspection focused on the areas around Line Shacks 130 and 400, which are Sites 2B and 2C, respectively. Complete descriptions of individual site histories are included in Chapter 4.

Application of RCRA corrective action began in June 1988, when U.S. Environmental Protection Agency (EPA) contractors conducted a RCRA Facility Assessment (RFA) of the base. The RFA identified all sites previously studied under the IRP as solid waste management units (SWMUs). Several additional SWMUs were identified and reviewed

during the RFA. According to RCRA protocol, an RFI should follow the RFA when known or potential contamination warrants further study.

Prior to the initiation of a full-scale RFI, CH2M HILL conducted an Interim RFI in August 1990 to guide the RFI's scope of work. The Interim RFI continued the investigation of six sites, which were originally studied under the Navy's Installation Restoration Program, and also initiated work at four other sites. The field activities were oriented towards guiding a decision on whether a given site should be included for study under the RFI. The Interim RFI recommended additional work at 6 of the 10 sites studied, but at four sites, no further investigation was recommended.

The first phase of the RFI at Oceana was conducted in 1992 and 1993. The final report for the first phase of the RFI was produced in December 1993.

## Regulatory Framework

A total of 60 sites were recommended for study in the draft Consent Order issued by the U.S. Environmental Protection Agency (EPA). After reviewing the results of the Interim RFI, the Navy and EPA agreed to reduce the list of RFA SWMUs to be studied under the RFI to 19.

Because of the proximity of four of the RFA SWMUs, they were consolidated into two RFI SWMUs with the result that 17 RFI SWMUs were designated for additional study in the final Consent Order between the Navy and the EPA, dated March 1990. Table 1-1 is a list of the RFA sites studied during the RFI. Figure 1-1 shows the location of each SWMU. The RFI SWMUs will be referred to as ''sites'' in this SMP.

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| Table 1-1<br>RCRA SOLID WASTE MANAGEMENT UNITS<br>NAVAL AIR STATION, OCEANA | | |
|---|---|---|
| **RFI SWMU No.** | **RFA SWMU No.** | **Description** |
| 1 | 57 | West Woods Oil Disposal Pit |
| 2b<br>2c<br>2d<br>2e | 51-54 | Line Shack 130-131<br>Line Shack 400<br>Line Shack 125<br>Line Shack 109 |
| 2e | 1 | Hazardous Waste Storage Area, Bldg. 23 |
| 11<br>26 | 62,63,65 | Fire Fighting Training Ring<br>Fire Fighting Burn Pit, Bldg. 220 |
| 15 | 58 | Abandoned Tank Farm, Old CPO Club |
| 16<br>16GC | 95 | Pesticide Storage Area, Bldg. 821<br>Golf Course Support Facilities |
| 18 | 3 | Hazardous Waste Storage Area, Bldg. 204 |
| 19 | 71 | Waste Oil Storage Areas, Bldg. 541 |
| 20 | 72 | Waste Oil Storage Areas, Bldg. 543 |
| 21 | 97 | Transformer Storage Yard, Bldg. 830 |
| 22 | 22 | Construction Debris Landfill |
| 23 | 78 | Bowser, Bldg. 830 |
| 24 | 79 | Bowser, Bldg. 840 |
| 25 | 25 | Inert Landfill |

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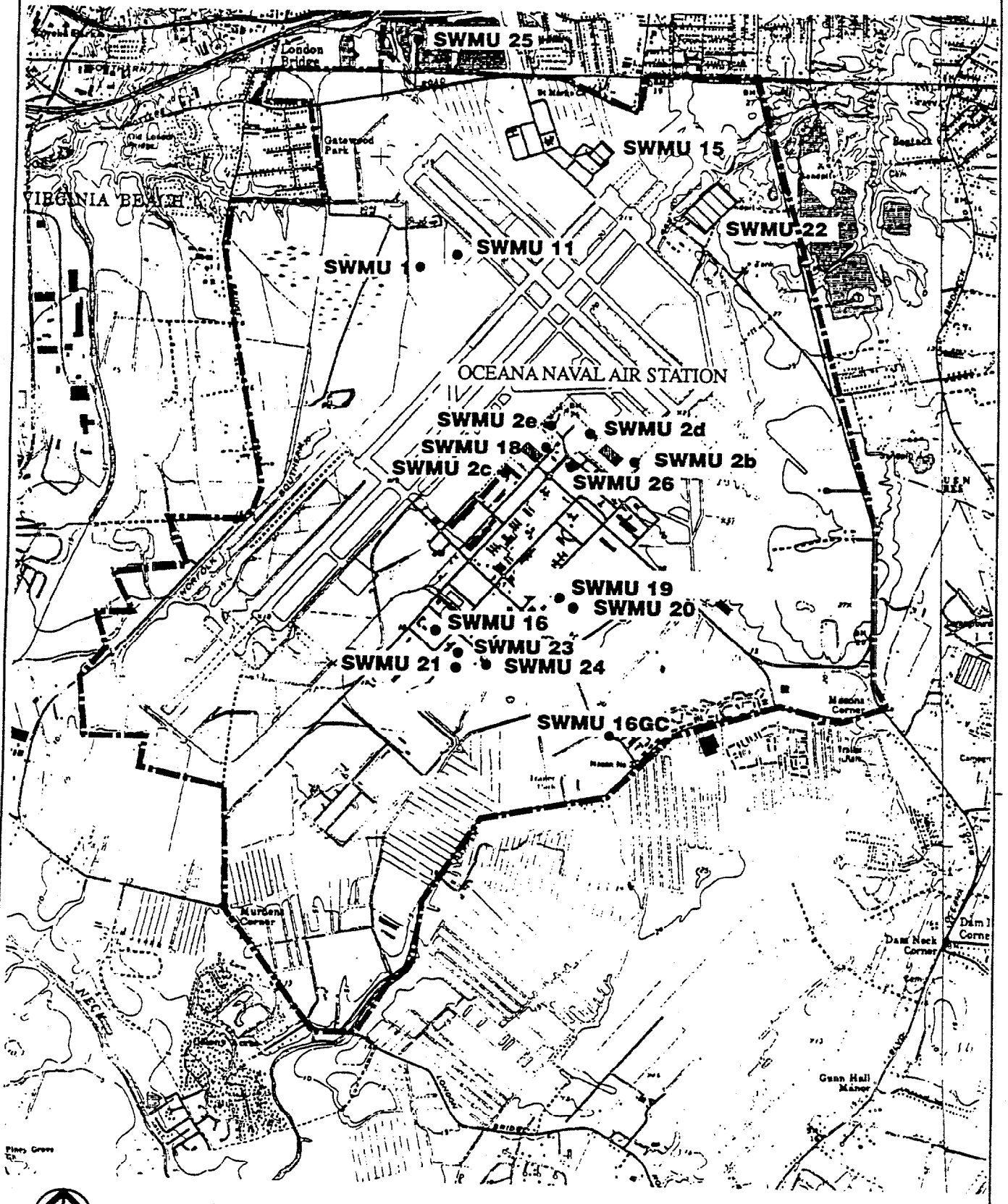


**Figure 1-1**
LOCATIONS OF SWMUs
RCRA Facility Investigation–Naval Air Station, Oceana

The Consent Order specified four RCRA corrective action steps that would be required for the sites. These were:

- Interim Measures, including the preparation of a community relations plan and other plans for future work
- The RFI
- A corrective measures study (CMS) to identify appropriate remediation technologies and approaches to remediate sites that require cleanup
- A corrective measures implementation of the selected remedies

## Report Organization

The remainder of this report contains two chapters. Chapter 2 describes the SWMUs that will be included in the SMP and the grouping of these sites. Chapter 3 presents the management schedules for the remainder of the RCRA Corrective Action process at NAS Oceana. A short-term schedule (FY 94) and a schedule for completion of all activities is provided. A list of references discussed in this SMP is given at the end of this report.

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# Chapter 2
# Solid Waste Management Units

At the completion of the first phase of the RFI, the Navy concluded that the 17 SWMU sites studied could be grouped into four recommended action categories (Table 2-1). These categories are given below.

1. **Advance to CMS.** This category includes sites that are sufficiently characterized and have contamination that warrant a corrective measures study (CMS) of potential remediation options, even if some additional characterization is needed (Sites 1, 2B, and 2C).

2. **Phase 2 RFI.** This category includes sites that have contamination that have not been characterized sufficiently to either proceed to the CMS or reasonably rule out further action (Sites 2D, 2E, 15, and 25).

3. **Design of Remedial Action.** This category includes sites where only petroleum contamination in soils has been identified. These sites are anticipated to have a streamlined CMS and design for a quick response to the soil contamination (Sites 11, 18, 19, 20, and 24).

4. **No Further Study or Remediation.** This category includes sites where RFI results do not indicate the need for additional study or consideration of remediation options (Site 16, 21, 22, 23, and 26).

The 12 remaining SWMU sites to be evaluated further in the RCRA Corrective Action process are discussed in the following subsections.

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Table 2-1
STATUS OF SOLID WASTE MANAGEMENT UNITS

| Site | Description | Corrective Measures Study | POL Site Remediation | Additional RFI Study | No Further Study or Remediation |
|---|---|---|---|---|---|
| 1 | West Woods Oil Pit | • | | | |
| 2B | Line Shack 130-131 Disposal Area | • | | | |
| 2C | Line Shack 400 Disposal Area | • | | | |
| 2D | Line Shack 125 Disposal Area | | | • | |
| 2E | Line Shack 109 Disposal Area | | | • | |
| 11 | Western Firefighting Training Ring | | • | | |
| 15 | Abandoned Tank Farm | | | • | |
| 16, 16GC | Pesticide Storage Areas | | | | • |
| 18 | Hazardous Waste Storage | | • | | |
| 19 | Waste Oil Storage, Bldg. 541 | | • | | |
| 20 | Waste Oil Storage, Bldg. 543 | | • | | |
| 21 | Transformer Storage Yard | | | | • |
| 22 | Construction Debris Landfill | | | | • |
| 23 | Waste Oil Bowser, Bldg. 830 | | | | • |
| 24 | Waste Oil Bowser, Bldg. 840 | | • | | |
| 25 | Inert Landfill | | | • | |
| 26 | Fire Station Firefighting Training Ring | | | | • |

Notes: Refer to the RFI report (CH2M HILL, 1993) for the recommendations for each site and the rationale for future activities.

# CMS Sites

## Site 1—West Woods Oil Disposal Pit

The West Woods Oil Disposal Pit is located in the northwest part of NAS Oceana, approximately 1,000 feet west of abandoned Runway 9 and the fire fighting training area. According to the IAS, the site was originally an open pit in which an estimated 110,000 gallons of waste oil, fuels (such as JP-5, JP-3, and AVGAS), PD 680, various chlorinated and aromatic hydrocarbons (trichlorotrifluoromethane, benzene, toluene, and naphtha), aircraft-maintenance chemicals, paints, paint thinners and strippers, and agitine were disposed of from the mid-1950s to the late 1960s (RGH, 1984). Drilling at this site also has shown that metal, concrete, and other debris were disposed of in the pit or were included in the fill material. On the basis of a 1958 aerial photograph of the site, the pit appears to have been approximately 50 to 100 feet in diameter.

In the late 1960s, the pit flooded and its contents are believed to have washed into the main drainage ditch, 100 feet west of the oil disposal pit. As a result, waste disposal ceased and the pit was filled with soil (RGH, 1984). The NAS boundary is approximately 1,000 to 2,000 feet west or northwest of the oil pit.

## Site 2B—Line Shack 130-131 Disposal Area

Site 2B is southeast of the main MATWING hangar 122. The site includes Line Shacks 130 through 134, the five aircraft cleaning stations northeast of Line Shack 130 and the meadow and forested area outside the flightline fence.

The IAS states that potential contaminants at Site 2B may include: oil, hydraulic fluid, turco, paint stripper and thinners, PD 680, and aromatic hydrocarbons (naphtha, benzene, toluene and derivatives), all of which were used in aircraft maintenance activities (RGH, 1984). These waste oils and aircraft-maintenance chemicals were disposed of adjacent to

the line shacks in unknown amounts beginning in 1963, when the line shacks were constructed, until the early 1980s (RGH, 1984). A hazardous waste collection and recycling program has been in force throughout the base since 1981. During the 1980s an oil-water separator system was installed in the aircraft cleaning area northeast of Line Shack 130 to separate oil from wash water flowing from the aircraft cleaning area.

### Site 2C—Line Shack 400 Disposal Area

Site 2C is encompassed by Line Shack 400 and Buildings 301, 401, and 404. This general area, which is part of FITWING, has been and continues to be used for aircraft maintenance and cleaning. In earlier years, Navy personnel disposed of various maintenance and cleaning chemicals similar to those discharged at Site 2B. These chemicals potentially include waste oil, hydraulic fluid, PD680, paint stripper, thinner, Turco, naphtha, and B&D 3400 Engine Cleaner (RGH, 1984). Waste disposal occurred near Line Shack 400 starting in 1963, the year the line shack was constructed, until the early 1980s, when a hazardous waste recovery program was instituted (RGH, 1984). The area around the line shack originally had an earthen surface but it was capped with 15 inches of concrete in the early 1980s (RGH, 1984). A disposal area southwest of Building 400 was reported to be visible in 1971 air photographs reviewed during the IAS (RGH, 1984). It is not known if the soil was removed and if so, where it was taken for disposal (RGH, 1984).

## RFI Sites

### Site 2D—Line Shack 125 Disposal Area

Site 2D extends south-southeastward from Hanger 111 to slightly beyond Line Shack 125. The area of investigation is both inside and outside the flight line fence in the MATWING area. Line Shack 125 was construction in 1963. This site has been a location for aircraft

cleaning and maintenance along with equipment and material storage. The IAS identified Site 2D as an area where waste chemicals from aircraft cleaning and maintenance activities were disposed. Potential contaminants that may have been released from 1963 until the early 1980s include: oil, hydraulic fluid, PD 680, and aromatic hydrocarbons used for lubrication, paint stripping, and grease removal.

In the early 1980s, Line Shack 125 slowly sank in the asphalt, which was reportedly being dissolved by the waste oil that had been dumped over the adjacent fence for many years (RGH, 1984). During construction of a new concrete pad for the line shack in the early 1980s, a bulldozer sank several feet into oil-saturated soil after the asphalt had been scraped away (RGH, 1984). The IAS also reported that soil excavated near Line Shack 135 during pad construction was saturated with oily substances down to a depth of approximately 6 feet (RGH, 1984).

## Site 2E—Line Shack 109 Disposal Area

Site 2E is the area bounded by Hangar 23, Line Shack 109, Building 110, and a steam line along First Street. Because Line Shack 109 was constructed in 1963, it has been used for aircraft cleaning and maintenance, and equipment and material storage. The IAS identified this site as a location where waste chemicals from the Navy's cleaning and maintenance activities were disposed (RGH, 1984). These wastes potentially include oil, PD 680, aromatic hydrocarbons, and hydraulic fluid (RGH, 1984). There was reported to be a POL disposal area on the ground behind Line Shack 109 along the flight line fence (RGH, 1984). At the time of the IAS, a waste oil bowser and hazardous waste drums were seen on the ground along the fence (RGH, 1984). Waste oil also was reportedly funneled into a manhole near Line Shack 109 (RGH, 1984). This practice damaged electrical circuits that were encased in the manhole and prompted a cleanup of the manhole. This manhole is between Line Shack 109 and Hanger 23 near the northwest corner of Line Shack 109. A temporary hazardous waste storage area was constructed next to the fence near Hangar 23 between 1984 and 1988.

## Site 15—Abandoned Tank Farm

This site is in the former North Station area, approximately 800 feet northwest of Runway 23R and 1,000 feet northeast of the area used to store recreation vehicles near the old CPO officers' club. The abandoned tank farm served as the primary source of aircraft fuel for the North Station area when it was active from the mid-1950s to the mid-1970s. The tank farm consisted of six tanks: a 414,000-gallon tank used to store JP-3, two 50,000-gallon concrete tanks used for aviation gas, and three adjacent 12,000- to 18,000-gallon tanks believed to be used for automotive fuel, kerosene, or lube oil (RGH, 1984).

According to a report by R. E. Wright Associates, the tanks were emptied of fuel and filled with water after they were abandoned (R. E. Wright Associates, 1983). Tank G-5 was later used to store waste oil. The tanks and their associated piping were dismantled and removed in the mid-1980s. With the exception of some mounded earth near the former location of tank G-9, no signs of the locations of the tanks or their associated piping were observed during the RFI. Their locations were inferred from historical maps of the North Station area.

## Site 25—Inert Landfill

Site 25 is a landfill filled primarily with construction debris and demolished concrete located north of Potters Road on 26 acres of land. According to the RFA, the facility is unlined and was used as a borrow pit that supplied soil used in the construction of State Route 44. The pit was developed in a fine, sandy loam soil that has a moderately high hydraulic conductivity. Eventually, the pit filled with water and was used as a local dump. Borrow areas east of the inert landfill have also filled with water. NAS Oceana purchased the land in 1979 and received a permit from the Virginia Department of Health on May 24, 1979, permitting the disposal of inert solid waste. Waste disposal, however, may have begun as early as 1978 (RFA, 1988). NAS Oceana currently disposes of inert demolition

debris at this site; however, uncontrolled community waste disposal of unknown materials took place before NAS Oceana's purchase of the site.

During the VSI, direct releases to the surrounding soils were observed (RFA, 1988). On the north shore of the pit, construction debris and scrap metal were present (RFA, 1988). Personnel from the state of Virginia identified wood and waste paper products at this landfill in 1981 (RFA, 1988).

## POL Stabilization Sites

### Site 11—Fire-Fighting Training Area

Site 11 consists of two fire-fighting training rings and their immediate surroundings. The site is on the west side of NAS, Oceana at the intersection of two abandoned runways. From the early 1960s until the mid-1970s, two fire-fighting practice sessions each weekend as part of training exercises (RGH, 1984). Fifty to seventy-five gallons of waste oil, fuel, chlorinated and aromatic hydrocarbons, and hydraulic fluid were poured into the center of the abandoned runway, ignited, and extinguished. In the mid-1970s, a fire pit with an earthen outer berm was built (RGH, 1984). Due to the added containment potential of the earthen berm, the volume of liquid wastes and fuels burned increased to approximately 50,000 gallons annually (RGH, 1984). Discussions with officials from the Public Works Department indicate that occasionally fuel and water would overflow the earthen berm (R. E. Wright, 1983).

Sources of ignition for the training fire, in addition to the waste listed above, included paint, paint thinners and strippers, naphtha, trichlorotrifluoroethane, and PD 680 (RGH, 1984). Recently, a new fire pit was constructed adjacent to the old one, where jet fuel is burned for fire-fighting training. The new ring has an oil-water separator system (RGH, 1984).

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## Site 18—Hazardous Waste Storage, Building 204

Site 18 is a storage area near Building 200 adjacent to B Avenue. This storage area is approximately 15 by 25 feet, and stores less than ten drums. The walls, roof, and entrance way of this storage area are secured by a chain-link fence. Fifty-five-gallon drums rest upon a concrete slab floor. Under the current hazardous waste management program, they are stored for a period of less than 90 days. During the visual site inspection of a nearby storage shed, no release controls were observed, and there is no documentation of releases; however, soil staining was observed. The hazardous waste storage shed has existed for at least 10 years and was in use at the time of the VSI. The shed may date to 1981 when Public Works initiated the Hazardous Waste Pick-up Program.

The RFA noted that materials typically stored at the shed may include any of the following: double-bagged empty oil and paint cans; double-bagged oily rags; and drums of oil, paint thinner, paint remover, jet fuel, solvents, asbestos, PD 680, hydraulic fluid, freon, neutralized battery acid, and electric coolant oil.

## Site 19—Waste Oil Storage Area, Building 541

Site 19 is near Building 541, which has been the Navy Exchange Gas Station since 1972 (RGH, 1984). This site is a 50 to 100 square foot area where waste oil; solvents; and transmission, brake, and hydraulic fluids were stored in 55-gallon steel drums directly on the ground. The waste fluids and oil were generated by automobile repair and maintenance work at the station (RGH, 1984). An empty 55-gallon steel drum was observed in the grassy area immediately northeast of the gas station by CH2M HILL personnel during RFI activities. During the visual site inspection (VSI) completed as part of the RFA, inspectors noted soil staining and dead grass in this same area. During the VSI, only one drum was observed and there were no release-control mechanisms in place (RFA, 1988).

## Site 20—Waste Oil Storage Area, Building 543

Site 20 is on the grounds of Building 543, the Auto Hobby Shop. The auto hobby shop is a self-help automotive garage where Navy personnel can work on their cars when off duty. It has been in existence since 1976 (RGH, 1984). Waste motor oil, hydraulic fluid, automatic transmission fluid, and PD680 and other solvents were stored in 55-gallon drums directly on the ground at this site. A strip of grass and bare ground approximately 150 feet long and 3 feet wide runs between the asphalt next to Building 543 and a larger grass area outside the fence.

## Site 24—Bowser, Building 840

Site 24 is a bowser near Building 840. The Naval Construction Battalion (SEABEEs) has been based in Building 840 since 1972. The SEABEEs are involved in construction at Oceana NAS and other local naval installations (RFA, 1988). Waste solvents and oils generated at the equipment maintenance garage in Building 840 were hand carried and poured into the bowser, which was typically in the southernmost corner of the SEABEE compound (RFA, 1988). The bowser then was transported to the tank farm for disposal (RFA, 1988). During the VSI, heavy staining of the ground was observed in the area surrounding the waste oil bowser at Building 840 (RFA, 1988). Current practice is to dispose of waste oil in drums that are transported to the base hazardous waste lot, where they are transferred to the DRMO and disposed or recycled appropriately. The bowsers are not used currently. During CH2M HILL's RFI sampling, the bowser was not present and Navy personnel on the site during the sampling had no knowledge of it.

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# Chapter 3
# Site Management Schedule

The three categories of sites discussed in Chapter 2 for which further action is required have been prioritized by the Navy with each category having its own schedule. This chapter presents the schedule of activity for each category of sites.

In addition to the three categories of sites, a fourth project's schedule is included. The NAS Oceana is contemplating the construction of new facilities adjacent to SWMU2B. An evaluation of the potential for exposure to contamination and remediation costs associated with the proposed construction is being performed as a separate task outside of the RCRA Corrective Action process. This project, referred to as the Building 301 evaluation, is included in the SMP to help the Navy coordinate all related study and remediation activities at NAS Oceana.

The schedules were developed on the basis of currently available information and are intended to be adjusted periodically to reflect changes to the NAS Oceana RCRA Corrective Action program. For example, some groupings of sites may get further subdivided to reflect any changes in the Navy's priority for remediation.

## Short-Term Schedules

For each of the three groupings of sites and the Building 301 evaluation, a short-term schedule has been developed. These schedules are for FY 1994 and are shown in Figures 3-1 through 3-4. Figure 3-5 combines these four schedules into one figure, and Table 3-1 lists the schedule of RFI and CMS work at NAS Oceana. These schedules have been developed in the work plans for each of these projects as discussed in CH2M HILL, 1993a, 1993b, 1993c, and 1993d.

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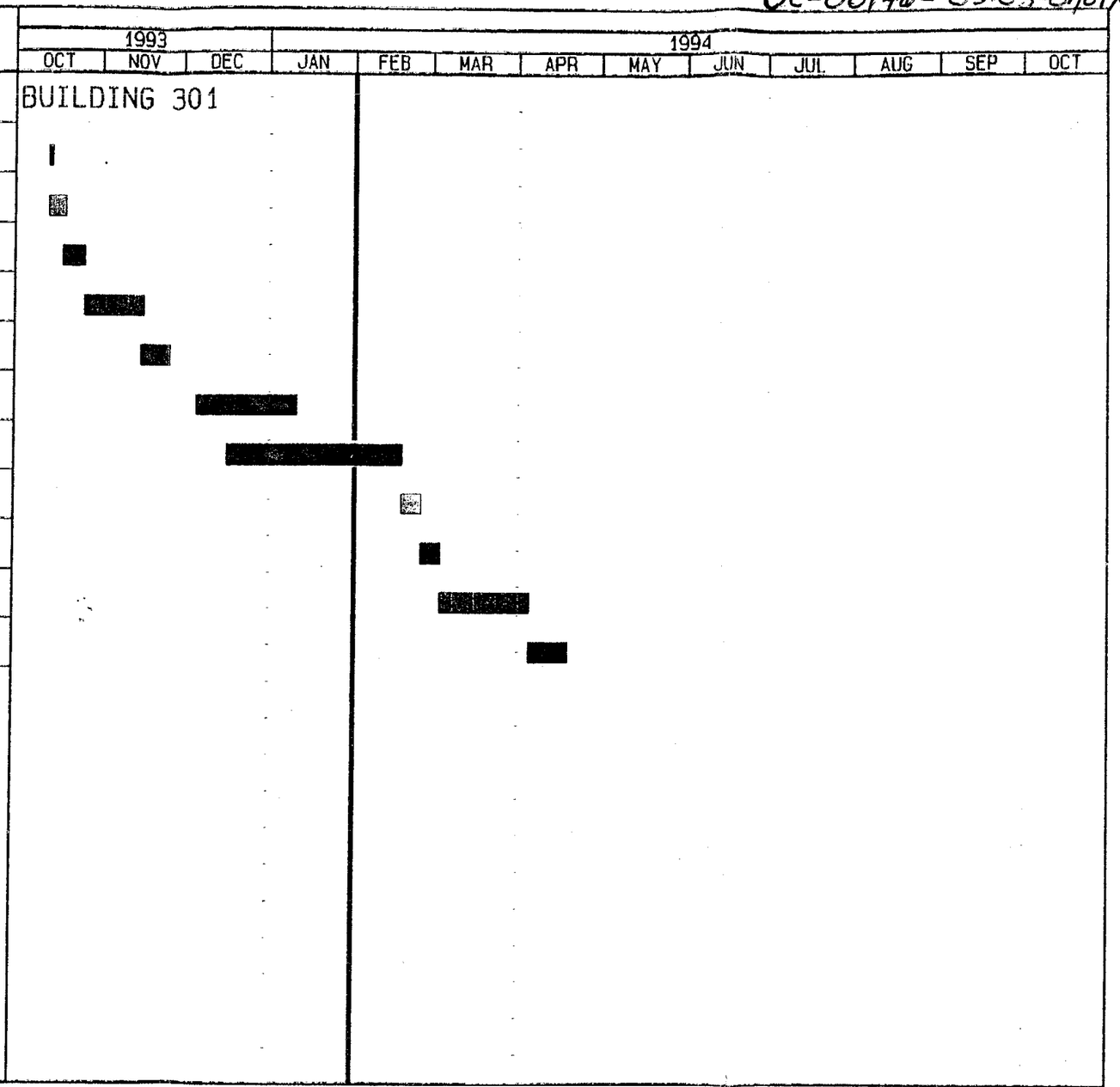
| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Draft Workplan to Navy | 1 | 13OCT93A | 13OCT93A |
| Navy Review of Workplan | 5 | 13OCT93A | 18OCT93A |
| Draft Final Workplan | 6 | 18OCT93A | 25OCT93A |
| EPA Review of Workplan | 13 | 26OCT93A | 15NOV93A |
| Final Workplan | 9 | 15NOV93A | 25NOV93A |
| Field Work | 10 | 6DEC93A | 10JAN94A |
| Develop Draft Report | 45 | 17DEC93A | 17FEB94 |
| Navy Review Draft Report | 5 | 18FEB94 | 24FEB94 |
| Final Draft Report | 5 | 25FEB94 | 3MAR94 |
| EPA Review Draft Report | 22 | 4MAR94 | 4APR94 |
| Develop Final Report | 10 | 5APR94 | 18APR94 |




Activity Classification: REVIEWER

CH2M HILL  EPA  NAVY



OCNA

NAS Oceana
Building 301 Evaluation
Project Schedule - FY94

FIGURE 3-1

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

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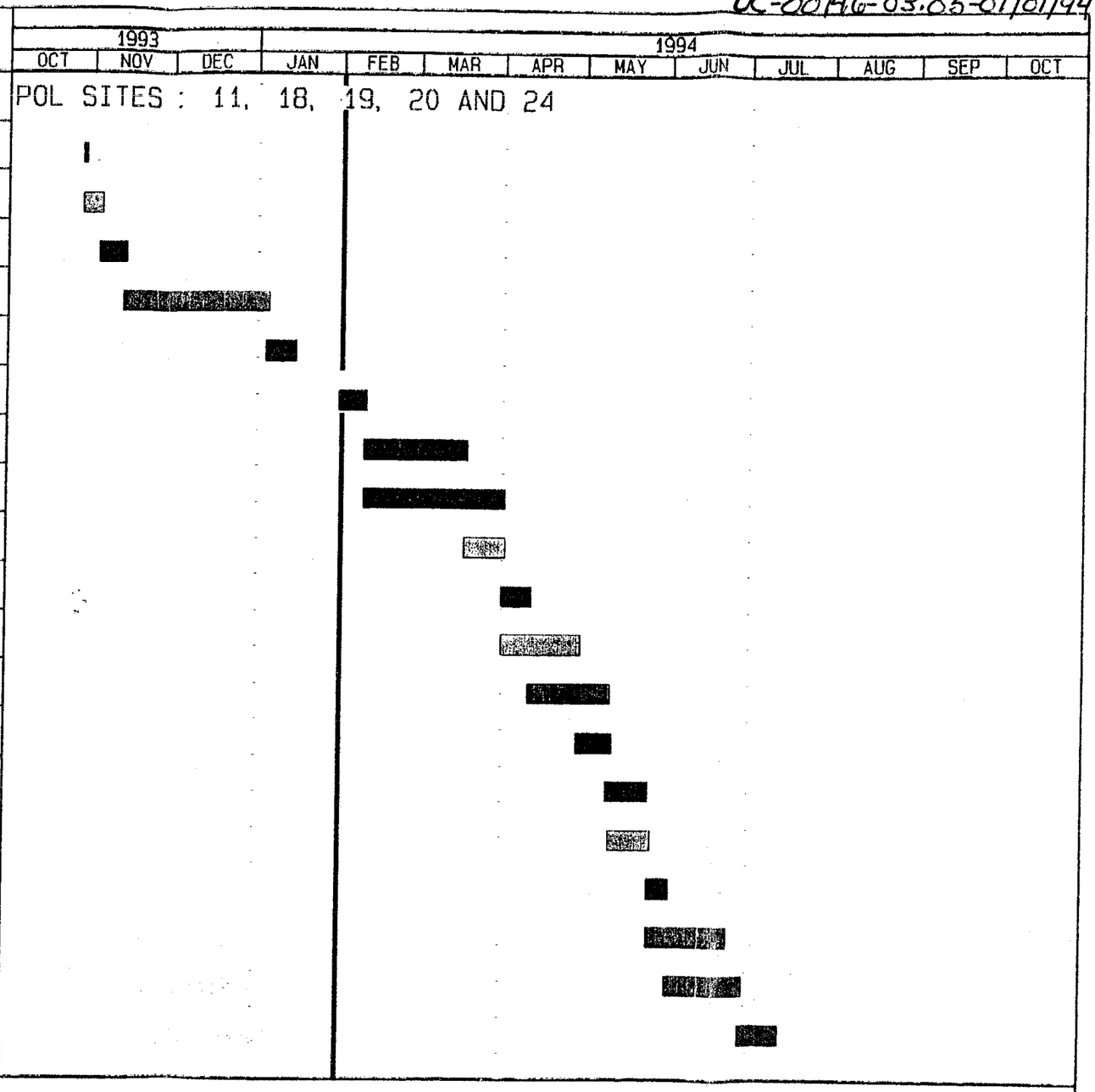
| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Draft Work Plan to Navy | 1 | 28OCT93A | 28OCT93A |
| Navy Review of Workplan | 5 | 28OCT93A | 3NOV93A |
| Draft Final Workplan | 8 | 3NOV93A | 12NOV93A |
| EPA Review of Workplan | 35 | 12NOV93A | 4JAN94A |
| Final Workplan | 9 | 4JAN94A | 14JAN94A |
| Field Work | 8 | 31JAN94A | 9FEB94 |
| Develop Draft Report | 28 | 9FEB94 | 18MAR94 |
| Develop 60% Design | 38 | 9FEB94 | 1APR94 |
| Navy Review of Draft Report | 11 | 18MAR94 | 1APR94 |
| Final Draft Report | 7 | 1APR94 | 11APR94 |
| Navy Review of 60% | 21 | 1APR94 | 29APR94 |
| EPA Review of Final Draft Report | 22 | 11APR94 | 10MAY94 |
| Develop 90% Design | 9 | 29APR94 | 11MAY94 |
| Develop Final Report | 11 | 10MAY94 | 24MAY94 |
| Navy Review of 90% | 11 | 11MAY94 | 25MAY94 |
| Develop 100% Design | 6 | 25MAY94 | 1JUN94 |
| Develop Statement of Basis | 22 | 25MAY94 | 23JUN94 |
| EPA Review of 100% Design | 21 | 1JUN94 | 29JUN94 |
| Final Design | 11 | 29JUN94 | 13JUL94 |




Activity Classification: REVIEWER

CH2M HILL EPA NAVY



OCNA

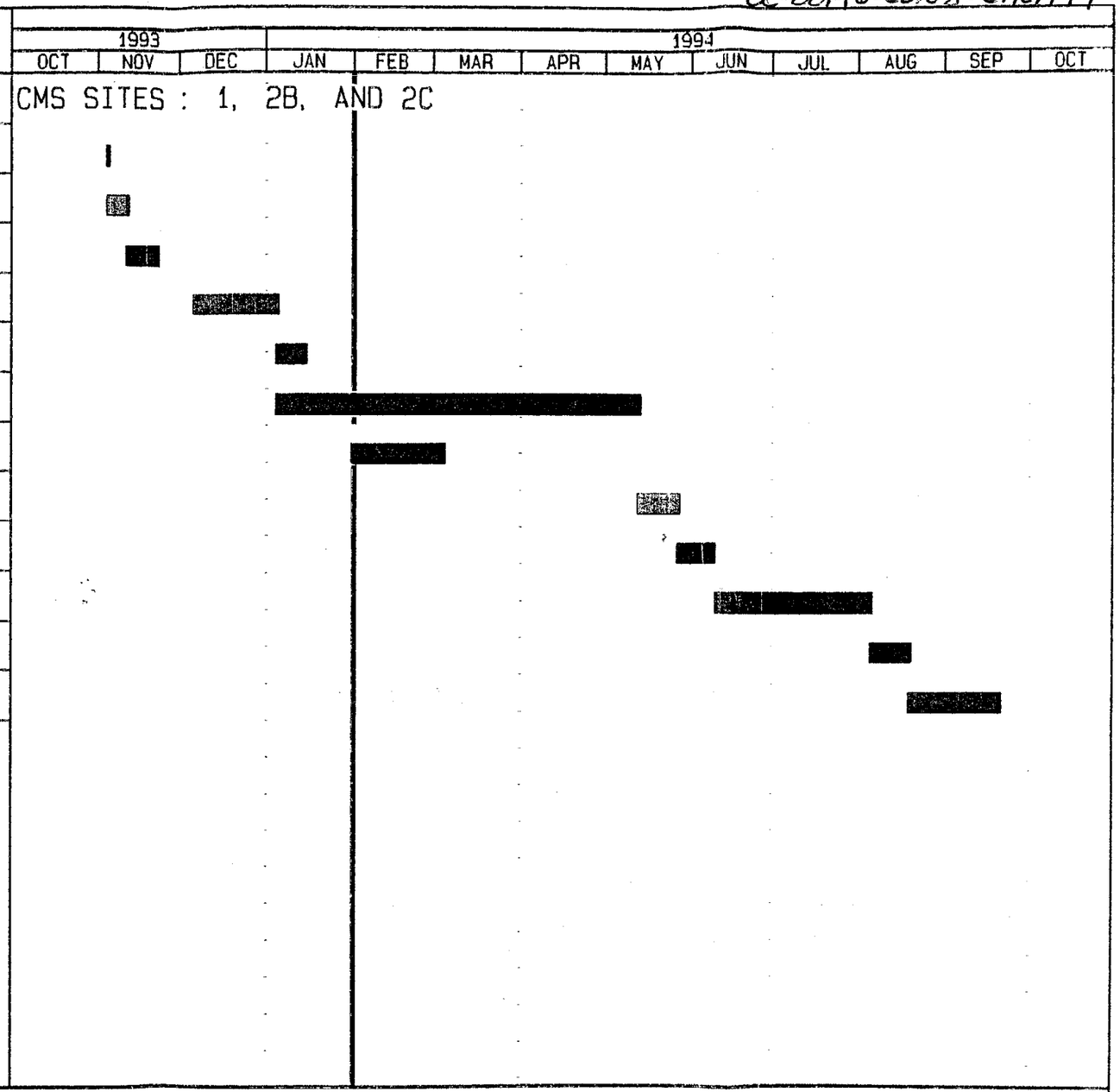
NAS Oceana
POL Sites: 11, 18, 19, 20 AND 24
Project Schedule - FY94

FIGURE 3-2

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

OC-00146-03.05-01/01/94

| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Draft Workplan to Navy | 1 | 4NOV93A | 4NOV93A |
| Navy Review of Workplan | 6 | 4NOV93A | 11NOV93A |
| Draft Final Workplan | 8 | 11NOV93A | 22NOV93A |
| EPA Review of Workplan | 22 | 6DEC93A | 4JAN94A |
| Final Workplan | 9 | 4JAN94A | 14JAN94A |
| Develop Draft Report | 94 | 4JAN94A | 13MAY94 |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| Navy Review of Draft Report | 11 | 13MAY94 | 27MAY94 |
| Final Draft Report | 10 | 27MAY94 | 9JUN94 |
| EPA Review of Report | 41 | 10JUN94 | 5AUG94 |
| Develop Final Report | 11 | 5AUG94 | 19AUG94 |
| Develop Statement of Basis | 23 | 19AUG94 | 20SEP94 |




Activity Classification: REVIEWER

CH2M HILL  EPA  NAVY



OCNA

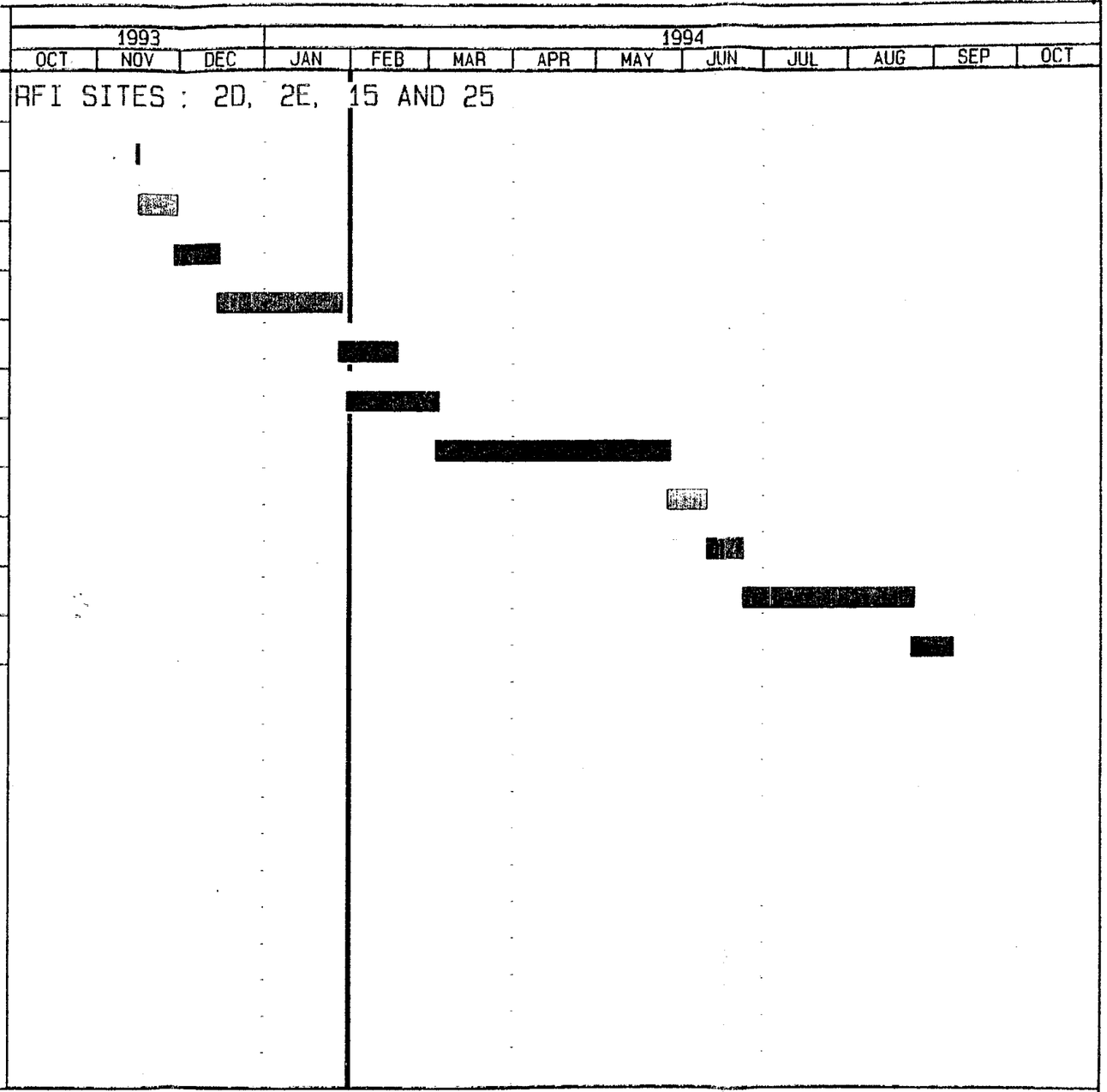
NAS Oceana
CMS Sites: 1, 28 AND 2C
Project Schedule - FY94

FIGURE 3-3

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

OC-00146-03.05-01/01/94

| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Draft Work Plan for Navy | 1 | 15NOV93A | 15NOV93A |
| Navy Review of Workplan | 10 | 16NOV93A | 29NOV93A |
| Draft Final Workplan | 14 | 29NOV93A | 15DEC93A |
| EPA Review of Workplan | 33 | 15DEC93A | 28JAN94A |
| Final Workplan | 15 | 28JAN94A | 17FEB94 |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| Develop Draft Report | 61 | 4MAR94 | 27MAY94 |
| Navy Review of Draft Report | 10 | 27MAY94 | 9JUN94 |
| Final Draft Report | 10 | 10JUN94 | 23JUN94 |
| EPA Review of Report | 44 | 24JUN94 | 24AUG94 |
| Develop Final Report | 11 | 24AUG94 | 7SEP94 |




Activity Classification: REVIEWER

CH2M HILL  EPA  NAVY

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OCNA

NAS Oceana
RFI Sites: 2D, 2E, 15 AND 25
Project Schedule - FY94

FIGURE 3-4

| Date | Revision | Checked | Approved |
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OC-00146-03.05-01/01/94

| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| **BUILDING 301** | | | |
| Draft Workplan to Navy | 1 | 13OCT93A | 13OCT93A |
| Navy Review of Workplan | 5 | 13OCT93A | 18OCT93A |
| Draft Final Workplan | 6 | 18OCT93A | 25OCT93A |
| EPA Review of Workplan | 13 | 25OCT93A | 15NOV93A |
| Final Workplan | 9 | 15NOV93A | 25NOV93A |
| Field Work | 30 | 01DEC93A | 10JAN94A |
| Develop Draft Report | 45 | 17DEC93A | 17FEB94 |
| Navy Review Draft Report | 5 | 18FEB94 | 24FEB94 |
| Final Draft Report | 5 | 25FEB94 | 3MAR94 |
| EPA Review Draft Report | 22 | 4MAR94 | 31MAR94 |
| Develop Final Report | 10 | 5APR94 | 18APR94 |
| **PDL SITES : 11, 18, 19, 20 AND 24** | | | |
| Draft Work Plan to Navy | 1 | 28OCT93A | 28OCT93A |
| Navy Review of Workplan | 5 | 28OCT93A | 3NOV93A |
| Draft Final Workplan | 8 | 3NOV93A | 12NOV93A |
| EPA Review of Workplan | 35 | 12NOV93A | 4JAN94A |
| Final Workplan | 9 | 4JAN94A | 14JAN94A |
| Field Work | 8 | 31JAN94A | 9FEB94 |
| Develop Draft Report | 28 | 9FEB94 | 18MAR94 |
| Develop 60% Design | 38 | 9FEB94 | 1APR94 |
| Navy Review of Draft Report | 11 | 18MAR94 | 1APR94 |
| Final Draft Report | 7 | 1APR94 | 11APR94 |
| Navy Review of 60% | 21 | 1APR94 | 29APR94 |
| EPA Review of Final Draft Report | 22 | 11APR94 | 10MAY94 |
| Develop 90% Design | 9 | 29APR94 | 11MAY94 |
| Develop Final Report | 11 | 10MAY94 | 24MAY94 |
| Navy Review of 90% | 11 | 11MAY94 | 25MAY94 |
| Develop 100% Design | 9 | 25MAY94 | 1JUN94 |
| Develop Statement of Basis | 22 | 25MAY94 | 23JUN94 |
| Review of 100% Design | 21 | 1JUN94 | 29JUN94 |
| Final Design | 11 | 29JUN94 | 13JUL94 |
| **CMS SITES : 1, 2B, AND 2C** | | | |
| Draft Workplan to Navy | 1 | 4NOV93A | 4NOV93A |
| Navy Review of Workplan | 6 | 4NOV93A | 11NOV93A |
| Draft Final Workplan | 8 | 11NOV93A | 22NOV93A |
| EPA Review of Workplan | 22 | 6DEC93A | 4JAN94A |
| Final Workplan | 9 | 4JAN94A | 14JAN94A |
| Develop Draft Report | 99 | 4JAN94A | 12MAY94 |
| Field Work | 28 | 31JAN94A | 4MAR94 |
| Navy Review of Draft Report | 11 | 13MAY94 | 27MAY94 |
| Final Draft Report | 10 | 27MAY94 | 9JUN94 |
| EPA Review of Report | 41 | 10JUN94 | 5AUG94 |
| Develop Final Report | 11 | 5AUG94 | 19AUG94 |
| Develop Statement of Basis | 23 | 19AUG94 | 20SEP94 |
| **AFI SITES : 2D, 2E, 15 AND 25** | | | |
| Draft Work Plan for Navy | 1 | 15NOV93A | 15NOV93A |
| Navy Review of Workplan | 10 | 16NOV93A | 29NOV93A |
| Draft Final Workplan | 14 | 29NOV93A | 15DEC93A |
| EPA Review of Workplan | 33 | 15DEC93A | 25JAN94A |
| Final Workplan | 16 | 26JAN94A | 17FEB94 |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| Develop Draft Report | 61 | 4MAR94 | 27MAY94 |
| Navy Review of Draft Report | 10 | 27MAY94 | 9JUN94 |
| Final Draft Report | 10 | 10JUN94 | 23JUN94 |
| EPA Review of Report | 44 | 24JUN94 | 24AUG94 |
| Develop Final Report | 11 | 24AUG94 | 7SEP94 |

Oceana RCRA Corrective Action
Project Schedule - FY94

FIGURE 3-5

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Table 3-1

SCHEDULE FOR RCRA RFI AND CMS WORK
AT NAS, OCEANA

| Project Milestone | Building 301 | POL Sites | CMS Sites | RFI Sites |
|---|---|---|---|---|
| Draft Workplan to Navy | Oct. 13, 1993 | Oct. 28, 1993 | Nov. 4, 1993 | Nov. 15, 1993 |
| Receive Navy Comments | Oct. 18, 1993 | Nov. 3, 1993 | Nov. 11, 1993 | Nov. 29, 1993 |
| Submit Draft Final Workplan | Oct. 25, 1993 | Nov. 12, 1993 | Nov. 22, 1993 | Dec. 15, 1993 |
| Receive EPA Comments | Nov. 15, 1993 | Jan. 4, 1994 | Jan. 4, 1994 | Jan. 28, 1994 |
| Submit Final Workplan | Nov. 25, 1993 | Jan. 14, 1994 | Jan. 14, 1994 | Feb. 17, 1994 |
| Begin Field Work | Dec. 6, 1993 | Jan. 31, 1994 | Jan. 31, 1994 | Jan. 31, 1994 |
| Complete Field Work | Dec. 17, 1993 | Feb. 9, 1994 | Mar. 4, 1994 | Mar. 4, 1994 |
| Submit Draft Report to Navy | Feb. 18, 1994 | Mar. 18, 1994 | May 13, 1994 | May 27, 1994 |
| Receive Navy Comments | Feb. 24, 1994 | Apr. 1, 1994 | May 27, 1994 | June 9, 1994 |
| Submit Final Draft Report | Mar. 3, 1994 | Apr. 11, 1994 | June 9, 1994 | June 23, 1994 |
| Receive EPA Comments | Apr. 4, 1994 | May 10, 1994 | Aug. 5, 1994 | Aug. 24, 1994 |
| Submit Final Report | Apr. 18, 1994 | May 24, 1994 | Aug. 19 , 1994 | Sept. 7, 1994 |
| Develop Statement of Basis | -- | June 23, 1994 | Sept. 20, 1994 | Apr. 3, 1995* |
| Complete 60% Design | -- | Apr. 1, 1994 | -- | -- |
| Receive Navy Comments | -- | Apr. 29, 1994 | -- | -- |
| Complete 90% Design | -- | May 11, 1994 | -- | -- |
| Receive Navy Comments | -- | May 25, 1994 | -- | -- |
| Submit Draft Final Design | -- | June 1, 1994 | -- | -- |
| Receive EPA Comments | -- | June 29, 1994 | -- | -- |
| Submit Final Design | -- | July 13, 1994 | June 30, 1995* | Dec. 1, 1995* |

**Notes:**

*This table was prepared from short-term forecasts (Figures 3-1 through 3-5). Dates marked with an asterick are based upon the long-term forecasts found in Figures 3-6 through 3-9.

POL Sites are SWMUs 11, 18, 19, 20, and 24

CMS Sites are SMWUs 1, 2B, and 2C

RFI Sites are SWMUs 2D, 2E, 15 and 25

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In each of these schedules, different color bars have been assigned to the organization responsible for the completion of the task. The length of each bar represents the time allocated to accomplish the task with the given deliverable at the end. Each time the short-term schedule is updated, new specific deliverables will be added to the schedule as appropriate.

## Project Completion Schedules

For each of the three categories of sites a schedule has been developed that carries the project to completion of the remedial action (Figures 3-6 through 3-8). The Building 301 evaluation is not intended to go beyond FY 1994 and is, therefore, not included as a separate figure. All four projects are combined into one schedule shown in Figure 3-9.

These project completion schedules are not intended to predict specific deliverable dates in the future, but should be used to give estimates of times and durations of major activities during the NAS Oceana RCRA Correction Action process. Therefore, specific reference to the organizations responsible to complete the tasks are omitted from the figures.

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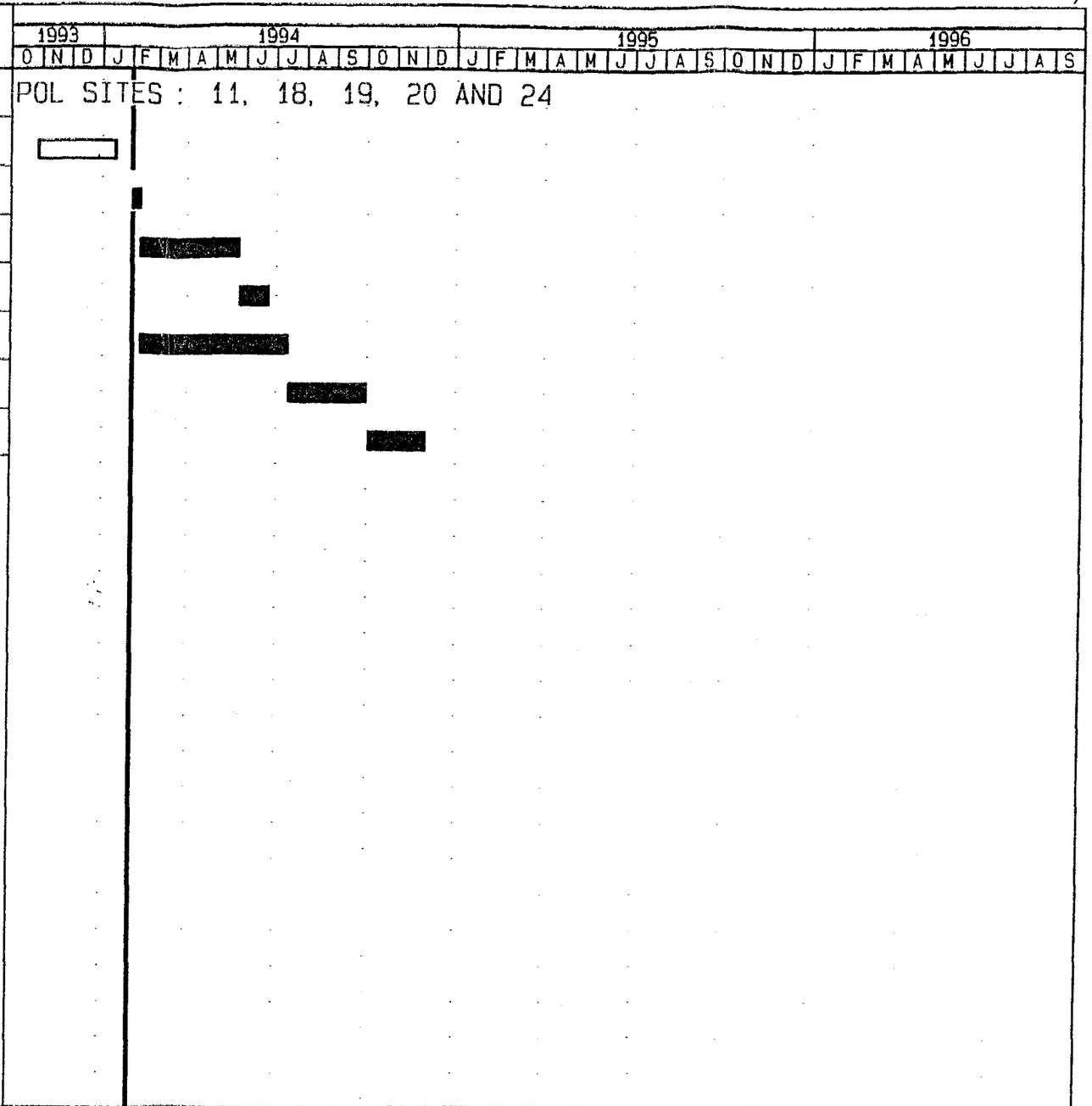
| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Work Plan | 58 | 28OCT93A | 14JAN94A |
| Field Work | 8 | 31JAN94A | 9FEB94 |
| Develop RFI / CMS Report | 75 | 9FEB94 | 24MAY94 |
| Statement of Basis | 22 | 25MAY94 | 23JUN94 |
| Perform 60%, 90%, 100% Design | 111 | 9FEB94 | 13JUL94 |
| Navy Contract for Remediation | 57 | 14JUL94 | 30SEP94 |
| Perform Remedial Action | 43 | 30CT94 | 30NOV94 |



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POL SITES: 11, 18, 19, 20 AND 24
Oceana RCRA Corrective Action
Project Schedule - Long Term

FIGURE 3-6

| Date | Revision | Checked | Approved |
|---|---|---|---|
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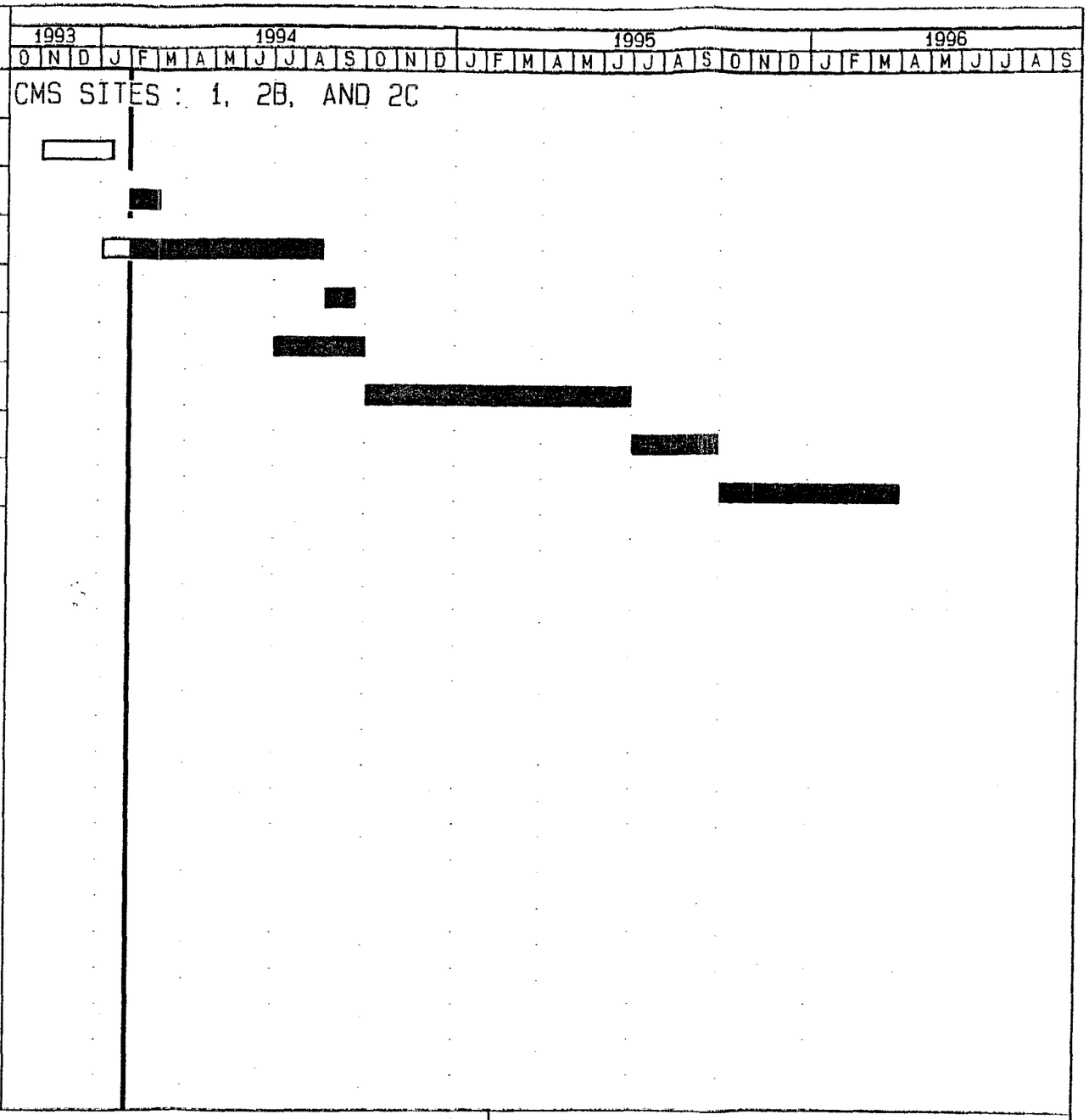
| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Work Plan | 52 | 4NOV93A | 14JAN94A |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| CMS Report | 164 | 4JAN94A | 19AUG94 |
| Statement of Basis | 22 | 22AUG94 | 20SEP94 |
| Navy Contract for Design | 66 | 1JUL94 | 30SEP94 |
| Perform 60%, 90%, 100% Design | 195 | 30CT94 | 30JUN95 |
| Navy Contract for Remediation | 65 | 3JUL95 | 29SEP95 |
| Perform Remedial Action | 132 | 20CT95 | 2APR96 |



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CMS SITES: 1, 28 AND 2C
Oceana RCRA Corrective Action
Project Schedule - Long Term

FIGURE 3-7

| Date | Revision | Checked | Approved |
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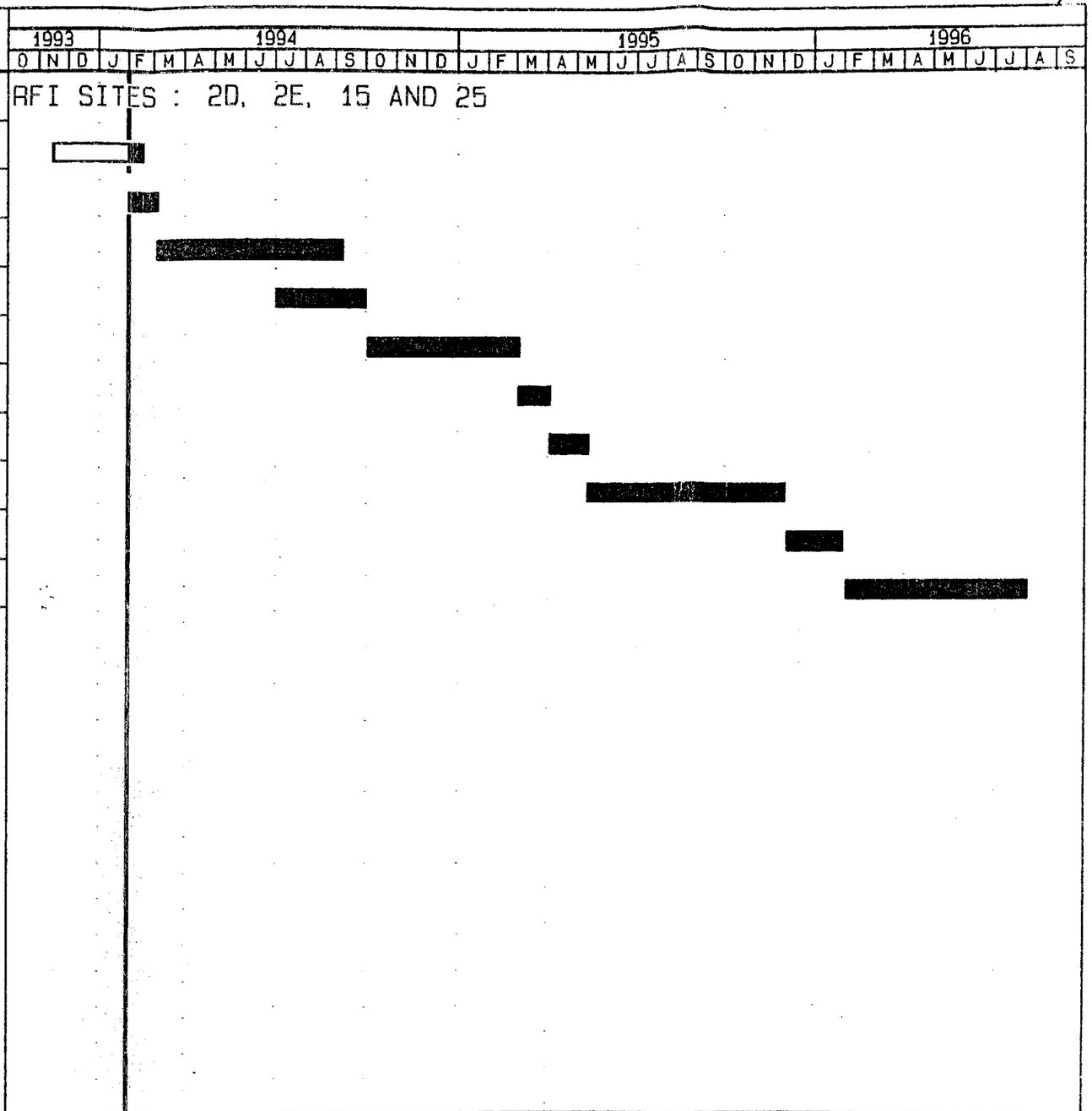
| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Work Plan | 69 | 15NOV93A | 17FEB94 |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| Prepare RFI Report | 134 | 4MAR94 | 7SEP94 |
| Navy Contract for CMS | 66 | 1JUL94 | 30SEP94 |
| Perform CMS | 110 | 30CT94 | 3MAR95 |
| Statement of Basis | 22 | 3MAR95 | 3APR95 |
| Navy Contract for Design | 30 | 3APR95 | 12MAY95 |
| Perform 60%, 90%, 100% Design | 146 | 12MAY95 | 1DEC95 |
| Navy Contract for Remedial Action | 41 | 4DEC95 | 29JAN96 |
| Perform Remedial Action | 131 | 2FEB96 | 2AUG96 |



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RFI SITES: 2D, 2E, 15 AND 25
Oceana RCRA Corrective Action
Project Schedule - Long Term

FIGURE 3-8

| Date | Revision | Checked | Approved |
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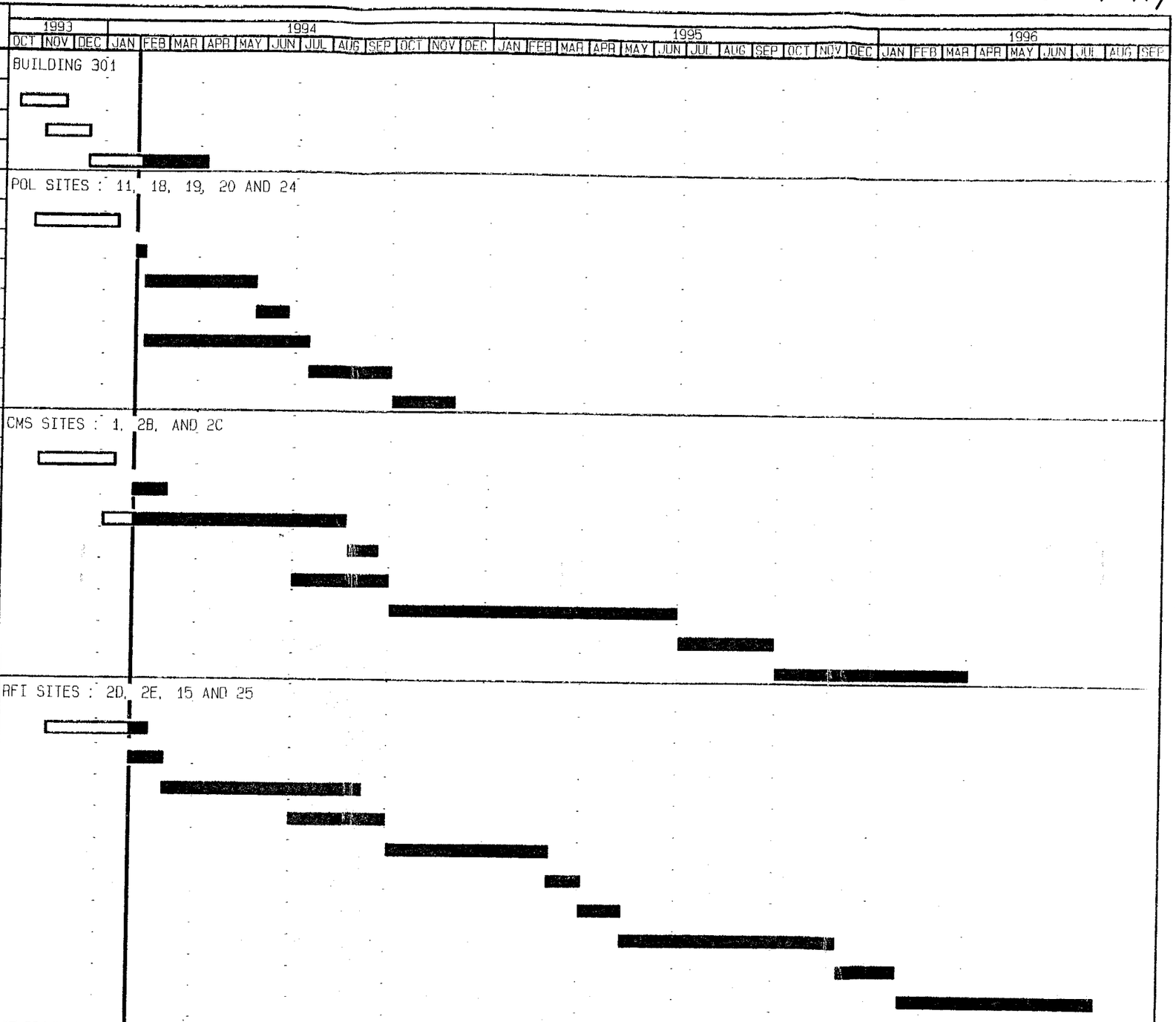
OC-00146-03.05-01/01/94

| ACTIVITY DESCRIPTION | ORIG DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| **BUILDING 301** | | | |
| Work Plan | 24 | 13OCT93A | 25NOV93A |
| Field Work | 30 | 6NOV93A | 17DEC93A |
| Report | 87 | 17DEC93A | 7APR94 |
| **POL SITES : 11, 18, 19, 20 AND 24** | | | |
| Work Plan | 58 | 28OCT93A | 14JAN94A |
| Field Work | 8 | 31JAN94A | 9FEB94 |
| Develop RFI / CMS Report | 75 | 9FEB94 | 24MAY94 |
| Statement of Basis | 22 | 25MAY94 | 23JUN94 |
| Perform 60%, 90%, 100% Design | 111 | 9FEB94 | 13JUL94 |
| Navy Contract for Remediation | 57 | 14JUL94 | 30SEP94 |
| Perform Remedial Action | 43 | 30CT94 | 30NOV94 |
| **CMS SITES : 1, 2B, AND 2C** | | | |
| Work Plan | 52 | 4NOV93A | 14JAN94A |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| CMS Report | 164 | 4JAN94A | 19AUG94 |
| Statement of Basis | 22 | 22AUG94 | 20SEP94 |
| Navy Contract for Design | 66 | 1JUL94 | 30SEP94 |
| Perform 60%, 90%, 100% Design | 195 | 30CT94 | 30JUN95 |
| Navy Contract for Remediation | 65 | 3JUL95 | 29SEP95 |
| Perform Remedial Action | 132 | 20CT95 | 2APR96 |
| **RFI SITES : 2D, 2E, 15 AND 25** | | | |
| Work Plan | 69 | 15NOV93A | 17FEB94 |
| Field Work | 25 | 31JAN94A | 4MAR94 |
| Prepare RFI Report | 134 | 4MAR94 | 7SEP94 |
| Navy Contract for CMS | 66 | 1JUL94 | 30SEP94 |
| Perform CMS | 110 | 30CT94 | 3MAR95 |
| Statement of Basis | 22 | 3MAR95 | 3APR95 |
| Navy Contract for Design | 30 | 3APR95 | 12MAY95 |
| Perform 60%, 90%, 100% Design | 146 | 12MAY95 | 1DEC95 |
| Navy Contract for Remedial Action | 41 | 4DEC95 | 29JAN96 |
| Perform Remedial Action | 131 | 2FEB96 | 2AUG96 |

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Oceana RCRA Corrective Action
Project Schedule - Long Term

FIGURE 3-9

| Date | Revision | Checked | Approved |
|---|---|---|---|
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OC-00146-03.05- 01/01/94

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WDCR778/006.WP5